

A Species List of Freshwater Algae from the Taiping Lakes, Perak, Malaysia

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Introduction

A need for data on the occurrence and distribution of the freshwater algae of Malaysia exists. Such information would be of value particularly to the fisheries biologist, hydrobiologist, ecologist and plant geographer.

The Taiping Lakes area is situated at the foot of the heavily forest clad Maxwell's Hill, the summit of which is about 1243 meters (4,076 feet) above mean sea level. The Hill and Taiping district generally are noted for their frequent and heavy rains, about 414 to 495 centimeters (163–195 inches) annually. Thus there is a constant source of water and the lakes never dry out completely. However their water level may be controlled by means of wooden sluice gates. The Taiping Lakes consist of about a dozen lakes and ponds of various sizes, the biggest being West Lake, approximately 805 meters (880 yards) long and 225 meters (246 yards) wide. Though few of the lakes are completely enclosed, most of them receive overflow water from the adjacent stream, drainage canals and lakes. Most of the lakes sampled were those at the south, south-east and central area (Fig. 1). Their waters were clearly acid, the pH ranging from 4 to 6; the colour of the water may be bluish where still and deep, brownish where there is suspended or dissolved humic and detrital material, or, rarely green with a 'bloom' of euglenoids. The limit of visibility varied from several centimeters to a meter or two. The substratum was mostly of soft mud, clay and silt; in a few instances, especially in the smaller ponds there was a thick layer of mowed grass, fallen leaves and twigs, and other decaying vegetation. Among the variety of animals encountered were *Hydra* sp., collected here for the first time in the Malaysian peninsula in December 1954, and subsequently in 1956–58 (Ratnasabapathy, M., unpublished data); *Amoeba* sp., *Arcella* sp., *Paramecium* sp., *Coleps* sp., *Halteria* sp., nematodes, rotifers, aquatic insects including *Ranatra* sp. and nymphs of Odonata; *Cyclops*, shrimps and crabs, *Aplocheilus panchax*, *Rasbora trilineata*, *Ophiocephalus* sp., half-beaks, catfishes; and tadpoles of frogs and toads. The lake area and surrounding lands were at one time mined for tin and the lakes are an outcome of this. The algae listed in this paper were collected during the

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period 22nd September 1957 to 11th January 1958. At that time the lake area was fairly well stabilised and beautifully landscaped with grass slopes, lawns, flower beds and a golf course for recreational purposes. In recent years the central jungle has been turned into a zoo with introduced as well as native mammals and birds. Changes in the algal flora are thus expected and future follow-up collections should be interesting. The senior author has described earlier (1958, 1960, 1962a, 1962b) several of the Euglenineae and Bacillariophyta listed here for the Taiping Lakes, and, is currently working on a monograph of the Malaysian Desmidiaceae where the species from the Taiping Lakes will be described.

Species List of Algae

BACILLARIOPHYTA

COSCINODISCACEAE

Melosira granulata (Ehrenberg) Ralfs.

Melosira italica (Ehrenberg) Kuetzing.

EUNOTIACEAE

Eunotia maior (W. Smith) Rabenhorst var. *emarginata* A. Cleve.

Desmogonium rabenhorstianum Grunow.

NAVICULACEAE

Frustulia rhomboides (Ehrenberg) de Toni.

Navicula radiosa Keutzing var. *minutissima* (Grunow) P. T. Cleve.

Pinnularia braunii (Grunow) P.T. Cleve.

Pinnularia braunii (Grunow) P.T. Cleve var. *amphicephala* (Mayer) Hustedt.

Pinnularia brebissonii (Kuetzing) P.T. Cleve var. *hybrida* (Grunow) A. Cleve.

Pinnularia brevicostata P.T. Cleve.

Pinnularia gibba W. Smith var. *interrupta* A. Cleve-Euler.

Pinnularia hemiptera (Kuetzing) Rabenhorst.

Pinnularia legumen Ehrenberg.

Pinnularia mesolepta (Ehrenberg) W. Smith.

Pinnularia parva (Gregory) P.T. Cleve var. *parvula* (Ralfs) A. Cleve-Euler.

Pinnularia stauroptera (Grunow) P.T. Cleve var. *subparallela* Mayer.

Pinnularia stomatophoroides Mayer var. *nuda* A. Cleve-Euler.

Pinnularia tabellaria Ehrenberg.



FIGURE 1. MAP OF TAIPING LAKES

GOMPHONEMATACEAE

Gomphonema subtile Ehrenberg.

NITZSCHIACEAE

Nitzschia palea (Kuetzing) W. Smith.

EUGLENOPHYTA

Euglena fusca (Klebs) Lemmermann.

Euglena gracilis Klebs.

Euglena splendens Dangeard.

Phacus curvicauda Swirenko.

Phacus hamatus Pochmann.

Phacus pseudo-nordstedtii Pochmann.

Phacus trifacialis Prowse.

Trachelomonas hispida (Perty) Stein emend. Déflandre.

Trachelomonas similis Stokes var. *hyalina* Skvortzow.

Trachelomonas superba Swirenko emend. Déflandre.

Trachelomonas volzii Lemmermann var. *cylindracea* Playfair.

CHLOROPHYTA

PALMELLACEAE

Sphaerocystis schroeteri Chodat.

HYDRODICTYACEAE

Pediastrum duplex Meyen.

Pediastrum tetras (Ehrenberg) Ralfs.

Tetraedron sp.

OOCYSTACEAE

Nephrocytium agardhianum Naegeli.

COELASTRACEAE

Coelastrum microporum Naegeli.

SELENASTRACEAE

Ankistrodesmus falcatus (Corda) Ralfs.

Closteriopsis longissima Lemmermann var. *tropica* West & West.

Selenastrum bibraianum Reinch.

DICTYOPHAERIACEAE

Dictyosphaerium pulchellum Wood.

Dimorphococcus lunatus A. Braun.

SCENEDESMACEAE

Scenedesmus brasiliensis Bohlin.

Scenedesmus perforatus Lemmermann.

Tetrallantos lagerheimii Teiling.

ULOTRICHACEAE

Hormidium sp.

OEDOGONIACEAE

Oedogonium sp.

ZYGNEMATACEAE

Spirogyra 2 spp.

MESOTAENIACEAE

Netrium digitus (Ehrenberg) Itzigsohn & Roth.

DESMIDIACEAE

Closterium diana Ehrenberg.

Closterium juncidum Ralfs.

Closterium libellula Focke.

Closterium liebleinii Kuetzing.

Closterium navicula (Brébisson) Luetkemuller.

Closterium toxon West.

Closterium venus Kuetzing.

Pleurotaenium kayei (Archer) Rabenhorst.

Pleurotaenium minutum (Ralfs) Delp. var. *excavatum* Scott & Grönblad.

Pleurotaenium ovatum Nordstedt.

Pleurotaenium nodosum (Bailey) Lundell var. *gutwinskii* Krieger.

Pleurotaenium verrucosum (Bailey) Lundell.

Euastrum denticulatum (Kirchner) Gay var. *quadrifarium* Krieger.

Euastrum gnathophorum West & West.

Euastrum longicolle Nordstedt var. *capitatum* West & West.

Euastrum moebii (Borge) Scott & Prescott.

Euastrum moebii (Borge) Scott & Prescott var. *burmense* West & West.

Euastrum pulcherrimum West & West var. *menggalense* Scott & Prescott.

Euastrum serratum Joshua.

Euastrum sinuosum Lenorm.

Micrasterias lux Joshua fa.

Micrasterias mahabuleshwariensis Hobson.

Micrasterias pinnatifida (Kuetzing) Ralfs.

Micrasterias radians Turner.

Micrasterias tropica Nordstedt var. *polonica* Eichler & Raciborski.

Cosmarium askenasyi Schmidle.

Cosmarium obsoletum (Hantzsch) Reinsch var. *sitvense* Gutwinski.

Cosmarium pseudoconnatum Nordstedt.

Xanthidium urniforme (West & West) Scott & Croasdale.

Arthrodesmus curvatus Turner.

Arthrodesmus octocornis Ehrenberg.

Staurastrum connatum (Lundell) Roy & Biss.

Staurastrum freemanii West & West var. *triquetrum* West & West.

Staurastrum pinnatum Turner.

Staurastrum pinnatum Turner var. *subpinnatum* (Schmidle) West & West.

Staurastrum sexangulare Lundell.

Staurastrum tohopekalagense Wolle.

Staurastrum wildemanii Gutwinski.

Spondylosium planum (Wolle) West & West.

Spondylosium tetragonum W. West.

CYANOPHYTA

Dactylococcopsis sp.

Merismopedia sp.

Spirulina gomontii Gutwinski.

Oscillatoria sp.

Anabaena sp.

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